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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/709,826

06/01/2004

Tishu Cai

MONS:150US

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FULBRIGHT & JAWORSKI, L.L.P.
600 CONGRESS AVENUE, SUITE 2400
AUSTIN, TX 78701

EXAMINER

ZHENG, LI

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

06/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/709,826

Applicant(s)

CAI ET AL.

Examiner

Li Zheng

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-30 are pending.
2. Applicant's amendments to claims 1 and 15, as well as additions of new claims 30 and 31 filed on 04/09/2007 are acknowledged. However, claim 31 is not found in the amended claim set. As a result, Claims 1-28 and 30 are currently examined on the merits.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. The objection to claims is withdrawn due to claim amendment.

Claim Rejections - 35 USC § 112

5. Claims 1-17 remain and claims 18-27 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for Agrobacterium-mediated transformation for maize using immature embryo and the bacterium inoculation process performed by submersing the embryos in Agrobacterium solution, does not reasonably provide enablement for all transformation methods, all cereal plants, all explants, or

other. The specification does not enable any person skilled in the art to which it pertains, or other bacterium inoculation processes contemplated in the specification with which it is most nearly connected, to make/use the invention commensurate in scope with these claims, for the reasons of record stated in the Office action mailed January 9, 2007. Applicants traverse in the paper filed April 9, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants argue that both transformation methods and the explants chosen are irrelevant to the invention which relates to the surprising finding that selection of particular culture condition improves the ability to obtain transformants (response, the paragraph bridging pages 6-7). Applicants further provide several literatures to support that the plant transformation using different methods and explants are well known in the art (response, 2nd paragraph of page 7 to 2nd paragraph of page 9). However, the office maintains that both transformation methods and the explants chosen are relevant. Although it is true that the plant transformation using different methods and explants are well known in the art, the effect of increased temperature during selection on the transformation efficiency for various transformation methods using various explants are not well known in the art. In fact, Applicants admit that at the time of the instant application was not regarded as an important parameter for investigation in studies of transformation efficiency (response, 2nd paragraph). Therefore, little, if at all, is known about the effect of increased temperature during selection on the transformation efficiency for plant transformation procedures other than *Agrobacterium*-mediated transformation for maize using immature embryo.

Applicants further argue that the selection of transformed cells takes place after a nucleotide sequence is inserted into plant cells therefore the manner in which the nucleotide sequence is inserted. The office disagrees. First, different explants have different preferred temperature for selection. Second, during transformation, the explants are subject to different treatments including chemical (e.g. PEG mediated), mechanical (e.g. bombardment) and biological (Agrobacterium-mediated) treatments, therefore they would show different sensitivity to the elevated temperature. For example, in one of the references provided by Applicants, Torbert et al. teach that when transformation of oat mature embryos is performed by bombardment, the selection temperature is only 20 °C (page 227, 4th paragraph of left column). Whereas Zhao et al. teach that transformed maize embryos were moved to selection medium and kept in the dark at 28 °C until herbicide resistant callus proliferated (see previous office action). Therefore, the temperature for selection in these two references differs by as much as 8 °C. Given the state of the prior art showing the differences of selection temperatures used for various explants, organisms and transformation methods, and Applicants' own admission that the increase in transformation frequency upon selection at higher temperature is unexpected, undue experimentation would be required to determine the effect of increased selection temperature on the transformation efficiency for any organism using any explant and any transformation method.

Claim Rejections - 35 USC § 102

6. Claims 1, 6-10, 14-16, 20-24 and 28 remain and claims 3, 5, 17, 19 and 30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Frame et al. in evidence of Zhao et al., for the reasons of record stated in the Office action mailed January 9, 2007. Applicants traverse in the paper filed April 9, 2007. Applicants' arguments have been fully considered but were not found persuasive.

Applicants argue that the cited references does not teach or suggest temperature above 28 °C. However, the office interprets that 28 °C is "about 30 °C" or "about 28.5 °C". Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 103

7. Claims 1-10, 14-24, and 28 remain and claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frame et al. in view of Zhao et al., for the reasons of record stated in the Office action mailed January 9, 2007. Applicants traverse in the paper filed April 9, 2007. Applicants' arguments have been fully considered but were not found persuasive.

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Applicants argue that with selection temperature considered unimportant, the prior art provides no reason to vary selection temperature or try to optimize the selection temperature, and that the increase in transformation frequency upon selection at high temperature is unexpected. However, as discussed above, the office interprets that 28 °C is "about 30 °C" or "about 28.5 °C". Even for those embodiments with a temperature higher than 28 °C, the limitations regarding the temperature and time length for selection are still considered optimization of process parameters which would not confer patentable distinction to the claimed invention. It may be true that that the increase in transformation frequency upon selection at high temperature is unexpected, however the "increased transformation efficiency" is not enabled for a any organism using any explant and any transformation method, as discussed above in enablement rejection.

Conclusion

No claim is allowed.

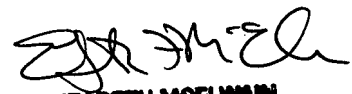
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Zheng whose telephone number is 571-272-8031.

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The examiner can normally be reached on Monday through Friday 9:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ELIZABETH MCELWAIN
PRIMARY EXAMINER